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ABSTRACT

The University of Wisconsin-La Crosse Computer Center's LACE Project is designed to familiarize teachers and students with the use of computers. The project offers a wide range of instructional computing services through timesharing computer terminals located across the state of Wisconsin. The success of the program is measured in part by its growth from 10 terminals in 1972 to 47 today. Users enjoy all the benefits of the central site computer at their terminal, including the ability to write their own programs or to use prewritten programs in nearly every subject area. The university's secondary education department has been instrumental in insuring the success of the programs and thus improving the quality of teacher education. The department has taught experienced and prospective teachers the effective use of computers in the classroom. Some of this has been done by specially designed courses, and, in addition, a notable effort has been made to expose all education students to the computer's potential in methods classes. As a result of these efforts, the LACE Project has been productive in improving the quality of teacher education at the university, as well as the quality of instruction in Wisconsin schools. (Author/CD)

THE LACE (La Crosse Computers in Education) PROJECT

Since computers are an extremely important part of today's instructional process, students and teachers must be educated in their use. In addition computers are permeating our entire society. Since today's students will eventually be the major contributors to this society, it is imperative that all teachers, including those in preparation, be ready to educate these students toward that end. It has been a significant challenge to find an effective delivery system for supplying instructional computing of high quality at a reasonable cost.

DESCRIPTION AND DEVELOPMENT OF THE PROGRAM

The LACE Project was designed to bring the capabilities of modern computers directly into the classrooms and laboratories of Wisconsin's schools and to bring the teacher education process into balance with that goal. It was constructed to have an impact on virtually every subject area at all grade levels.

Computers were first introduced into higher education in the 1950's and by 1970 they were widely used in colleges and universities. One area of deficiency, even in the early seventies, was that of teacher preparation. A second problem area was the small amount of infusion of this technology into elementary and secondary schools--both as a tool in and as an object of instruction. It was felt that the two problems were related and that a joint solution was appropriate.

The advent of time shared computers and suitable telephone transmission techniques provided the necessary technology, and the problems of awareness, delivery schemes and costs could then be addressed. The promotional effort

for a joint university - multiple school district network was begun in 1970. The first time shared computer was operational in January 1972 with six campus departments (including education) and four area high schools as a user cadre. Each local installation consists of a typewriter-like terminal connected to the central computer by a telephone line.

Subsequent growth has been rapid; by September 1975 there were seventeen user terminals on campus and thirty in school districts, colleges, and universities across the state. Support services offered by the project are comprehensive: a newsletter, credit and non-credit in-service training, consulting and 24 hour per day access to the computer. The project has been the source of numerous innovative programs and publications for use in many subject areas and grade levels.

It should be realized that access to hardware alone is a necessary but still insufficient condition for a successful instructional computing program. The features of the LACE Project which are noteworthy include: 1) a user-oriented newsletter, PUNCHLINE, (circulation 1500) with a modest international readership, 2) credit and non-credit teacher in-service seminars, workshops and forums, 3) professional managers, programmers, operators and consultants, 4) specially developed computer programs, 5) useful instructional materials.

OBJECTIVES

The LACE Project has four principal objectives:

1. to bring instructional computing into college and public school classrooms at an economically feasible cost and in a manner which makes the computer a tool easily accessible and usable by teachers.
2. to prepare prospective and experienced teachers to deal with the effects of computers on our society.
3. To encourage education students to make use of the computer as an

instructional support tool by providing college level experiences using materials, techniques and hardware which they are likely to encounter in the field.

4. to stimulate innovative instruction by creative use of computing in a broad range of disciplines, both in college courses and in public school field experiences. The computer is presented as an object of instruction, but even more important, applications outside the fields of mathematics and computer science are stressed.

PERSONNEL

The LACE network is operated by the Academic Services Section of the University Computer Center. Seven persons serve on the project staff, all in a part time capacity. Personnel include the Computer Center Director, project coordinator, a user relations coordinator, computer programmers and operators.

Indirect personnel support has been a key factor in the success of the project. University departments, notably Secondary Education, have contributed a great deal, as have the campus and off campus LACE coordinators. The Secondary Education Department assisted greatly at the start of the project by helping contact local educators and traveling about the area with Center personnel to give demonstrations.

Campus LACE coordinators provide liaison between their departments and the computer center. They provide students with University-wide exposure to classroom computing. They offer leadership to their departments and, along with their colleagues, have shown innovation in developing computer assisted instruction in macro-economics, statistical packages, interactive quiz systems with diagnosis, and computer analysis of English prose, to name just a few applications.

Off-campus LACE coordinators are an equally valuable asset to their high schools or colleges. In some high schools they are the only persons knowledgable about computing. They too have developed innovative applications including a medieval serf simulation program and one in dairy herd management.

BUDGET

The project began with an appropriation of $25,000 from the University of Wisconsin System. These funds assisted the network in completing the first year of operation; the network has now become completely self sufficient. Network operating expenses are now financed solely by user fees.

The current operating budget is $145,000. All LACE users are charged a flat rate for unlimited use of their terminal. This policy encourages use and also helps realize an original project goal of low cost. Many users achieve high utilization (200 hours per month or more) and experience a cost of less than $2 per hour of connect time. This is in contrast to commercial timesharing services which usually charge $5 to $10 per hour not including terminal and communication costs.

CONTRIBUTION TO IMPROVEMENT OF TEACHER EDUCATION

With the advent of the LACE project, instructional computing became an integral part of the teacher preparation curriculum. Students in the College of Education encounter computer applications throughout their professional education sequence.

The use of the computer in analyzing and summarizing test scores is perhaps the most obvious application, and education students become experienced in this regard. Education students also use a computer program which processes Flander's Interaction Analysis codings of their micro-teaching performances. Since LACE computer terminals are available in many of the public schools in which our students do their student teaching, many college supervisors and

public school cooperating teachers make use of the Flander's I.A. program for the purpose of critiquing student-teaching performance.

Computer assisted instruction (CAI) programs have been developed which teach behavorial objectives, and many students make use of these in their general methods course. A CAI program teaching basic concepts of the metric system is used in a one-credit metric education course offered statewide by the University of Wisconsin-La Crosse.

Students also gain experience in instructional computing in many of the special methods courses. Students in science, social studies, and mathematics methods courses gain experiences with computer simulations of real life events. Simulations dealing with pollution, national elections, personal finance, local governmental bodies, nuclear reactions and many others are used. Students planning to teach English and Reading make use of programs which perform analyses of linguistics, writing of poetry, and determination of the reading difficulty level of textbooks. Elementary education majors learn to use mathematics drill and practice programs and spelling drills. Guidance students learn to use the Guidance Information System - a computer-based system giving access to career data, post-secondary school selection assistance and scholarship and grant information.

The University of Wisconsin-La Crosse is the only university in the state which offers an undergraduate major in computer science education. This program, accredited by the State Department of Public Instruction, is a direct result of the LACE project and the cooperation between the College of Education, the Computer Science Department, and the Computer Center. Two courses in particular, "Computers in Education," and "Computer Assisted Instruction," have served as the primary vehicles for pre-service and in-service training of teachers for in-depth use of instructional computing. Both courses are taught by a professor having a joint appointment in the Education and

Computer Science Departments, again demonstrating cooperation between departments involved in the LACE project.

EVALUATION AND RESULTS

Success of the network can be measured by a number of criteria in addition to growth both in number of users and quality of service. Many teachers and administrators in the network have given verbal and written testimony as to the enhancement of their programs and their ready adoption of new techniques as a result of the availability of a LACE terminal.

External recognition of program excellence has taken many forms. The Wisconsin Department of Public Instruction has entered into two contracts with the LACE staff to conduct regional public school awareness conferences, to assist in drafting a long range state plan and to develop evaluative criteria for school district computer services. A letter of commendation from the State Superintendent of Public Instruction to the President of the University of Wisconsin System paid tribute to the value of this unique inter-agency effort.

LACE has been designated as a demonstration center by the Wisconsin Department of Public Instruction and as an approved regional site for providing computer services to Wisconsin school districts. The LACE Project is a site for dissemination of a computerized national career and school selection system under a U.S. Department of Labor grant to establish the Wisconsin Occupational Information System.

Papers related to the LACE experience have been presented at numerous national conferences by LACE and other University of Wisconsin-La Crosse staff. Staff members and users have also served on many boards and hold state and national offices in professional groups as a direct result of involvement with the project.

The LACE Project

SUMMARY

Computers are permeating our entire society and today's students will eventually take their place in that society. Today's and tomorrow's teachers must be ready to educate these students toward that end. For teachers to achieve this goal, both a means of supplying instructional computing directly to their classrooms and a means of preparing them to make effective use of the computer are needed.

The University of Wisconsin-La Crosse Computer Center's LACE Project is designed to achieve these parallel objectives. The project offers a wide range of instructional computing services through timesharing computer terminals located across the state of Wisconsin. The success of the program is measured in part by its growth from ten terminals in 1972 to forty-seven today. Users enjoy all the benefits of the central site computer at their terminal including the ability to write their own programs or to use pre-written programs in nearly every subject area.

The University's Secondary Education Department has been instrumental in insuring the success of the program and thus improving the quality of teacher education. The department has taught experienced and prospective teachers the effective use of computers in the classroom. Some of this has been done by specially designed courses, and in addition a notable effort has been made to expose all education students to the computer's potential in methods classes.

As a result of these efforts, the LACE Project has been productive in improving the quality of teacher preparation at the University as well as the quality of instruction in Wisconsin schools.